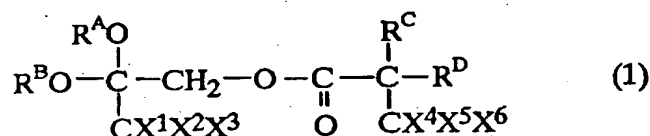
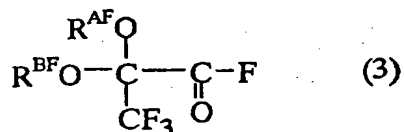
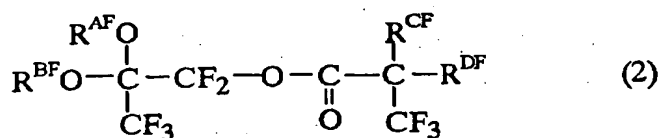


WHAT IS CLAIMED IS:

1. A process for preparing a fluorinated acyl fluoride represented by the following formula (3), which comprises reacting a compound represented by the following formula
- 5 (1) having a fluorine content of 30 mass% or above with fluorine in a liquid phase to form a compound represented by the following formula (2) and then dissociating the ester bond in the compound represented by the formula
- (2):



10



wherein each of  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$ , which may be the same or different, is a monovalent saturated hydrocarbon group, a

15 halogenated monovalent saturated hydrocarbon group, a hetero atom-containing monovalent saturated hydrocarbon group or a halogenated (hetero atom-containing monovalent saturated hydrocarbon) group, each of  $\text{R}^{\text{C}}$  and  $\text{R}^{\text{D}}$ , which

may be the same or different, is a hydrogen atom, a halogen atom, a monovalent saturated hydrocarbon group, a halogenated monovalent saturated hydrocarbon group, a hetero atom-containing monovalent saturated hydrocarbon group or a halogenated (hetero atom-containing monovalent saturated hydrocarbon) group,

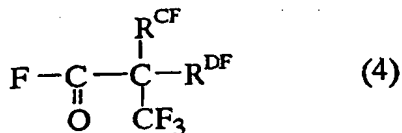
each of  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$  and  $X^6$ , which may be the same or different, is a hydrogen atom or a fluorine atom, provided that at least one of  $R^A$ ,  $R^B$ ,  $R^C$ ,  $R^D$ ,  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$  and  $X^6$  is a fluorine-containing group or a fluorine atom,

$R^{AF}$  corresponds to  $R^A$ ,  $R^{BF}$  corresponds to  $R^B$ ,  $R^{CF}$  corresponds to  $R^C$ ,  $R^{DF}$  corresponds to  $R^D$ , and when  $R^A$ ,  $R^B$ ,  $R^C$  and  $R^D$  are hydrogen-containing groups,  $R^{AF}$ ,  $R^{BF}$ ,  $R^{CF}$  and  $R^{DF}$  are groups derived respectively from  $R^A$ ,  $R^B$ ,  $R^C$  and  $R^D$  by replacing substantially all the hydrogen atoms by fluorine atoms, and when  $R^A$ ,  $R^B$ ,  $R^C$  and  $R^D$  are groups containing no hydrogen atoms,  $R^{AF}$ ,  $R^{BF}$ ,  $R^{CF}$  and  $R^{DF}$  are the same as  $R^A$ ,  $R^B$ ,  $R^C$  and  $R^D$ , respectively,

the combination of  $R^A$  and  $R^B$  and the combination of  $R^C$  and  $R^D$  may form bivalent groups selected from bivalent saturated hydrocarbon groups, halogenated bivalent saturated hydrocarbon groups, hetero atom-containing bivalent saturated hydrocarbon groups and halogenated (hetero atom-containing bivalent saturated hydrocarbon) groups, respectively, the combination of  $R^{AF}$  and  $R^{BF}$  forms a bivalent group corresponding to a bivalent group formed

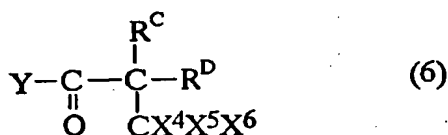
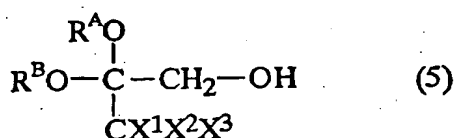
by the combination of  $R^A$  and  $R^B$ , and the combination of  $R^{CF}$  and  $R^{DF}$  forms a bivalent group corresponding to a bivalent group formed by the combination of  $R^C$  and  $R^D$ , provided that when the combination of  $R^A$  and  $R^B$  and the combination of  $R^C$  and  $R^D$  form hydrogen-containing bivalent groups, the bivalent groups formed by the combination of  $R^{AF}$  and  $R^{BF}$  and the combination of  $R^{CF}$  and  $R^{DF}$  are groups derived from the hydrogen-containing bivalent groups by replacing substantially all the hydrogen atoms by fluorine atoms, and when the combination of  $R^A$  and  $R^B$  and the combination of  $R^C$  and  $R^D$  form bivalent groups containing no hydrogen atoms, the bivalent groups formed by the combination of  $R^{AF}$  and  $R^{BF}$  and the combination of  $R^{CF}$  and  $R^{DF}$  are the same as the bivalent groups containing no hydrogen atoms.

2. The process according to Claim 1, wherein when the ester bond in the compound represented by the formula (2) is dissociated to form the fluorinated acyl fluoride represented by the formula (3), a compound represented by the following formula (4) is formed:



wherein  $R^{CF}$  and  $R^{DF}$  are the same as defined above.

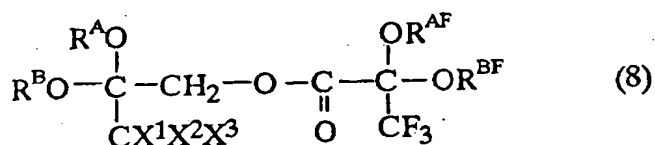
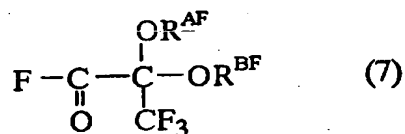
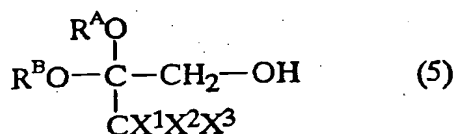
3. The process according to Claim 1, wherein the compound represented by the formula (1) is prepared by reacting a compound represented by the following formula (5) and a compound represented by the following formula (6):

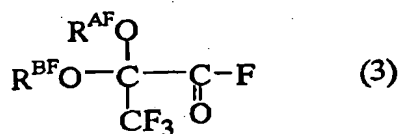
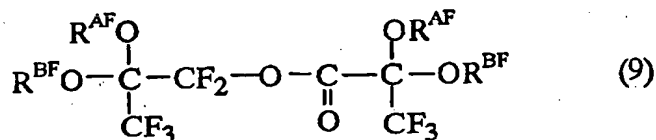


wherein  $\text{R}^{\text{A}}$ ,  $\text{R}^{\text{B}}$ ,  $\text{R}^{\text{C}}$ ,  $\text{R}^{\text{D}}$ ,  $\text{X}^1$ ,  $\text{X}^2$ ,  $\text{X}^3$ ,  $\text{X}^4$ ,  $\text{X}^5$  and  $\text{X}^6$  are the same as defined above, and Y is a halogen atom.

4. The process according to Claim 1, wherein in the compound represented by the formula (2),  $\text{R}^{\text{CF}}$  is the same as  $\text{OR}^{\text{AF}}$ , and  $\text{R}^{\text{DF}}$  is the same as  $\text{OR}^{\text{BF}}$ .
5. The process according to Claim 1, wherein the fluorine content of the compound represented by the formula (1) is from 30 to 70 mass%.
6. The process according to Claim 1, wherein the molecular weight of the compound represented by the formula (1) is from 200 to 1000.
7. A process for preparing a fluorinated acyl fluoride

represented by the following formula (3), which comprises  
 reacting a compound represented by the following formula  
 (5) with a compound represented by the following formula  
 (7) to form a compound represented by the following  
 5 formula (8) having a fluorine content of 30 mass% or  
 above, fluorinating the compound represented by the  
 formula (8) in a liquid phase to form a compound  
 represented by the following formula (9) and dissociating  
 the ester bond in the compound represented by the formula  
 10 (9):





wherein each of  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$ , which may be the same or different, is a monovalent saturated hydrocarbon group, a  
 5 halogenated monovalent saturated hydrocarbon group, a hetero atom-containing monovalent saturated hydrocarbon group or a halogenated (hetero atom-containing monovalent saturated hydrocarbon) group, each of  $\text{X}^1$ ,  $\text{X}^2$  and  $\text{X}^3$ , which may be the same or different, is a hydrogen atom or a  
 10 fluorine atom, provided that at least one of  $\text{R}^{\text{A}}$ ,  $\text{R}^{\text{B}}$ ,  $\text{X}^1$ ,  $\text{X}^2$  and  $\text{X}^3$  is a fluorine-containing group or a fluorine atom,

$\text{R}^{\text{AF}}$  corresponds to  $\text{R}^{\text{A}}$ ,  $\text{R}^{\text{BF}}$  corresponds to  $\text{R}^{\text{B}}$ , and when  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$  are groups containing a hydrogen atom,  $\text{R}^{\text{AF}}$  and  
 15  $\text{R}^{\text{BF}}$  are groups derived respectively from  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$  by replacing substantially all of the hydrogen atoms by fluorine atoms, and when  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$  are groups containing no hydrogen atoms,  $\text{R}^{\text{AF}}$  and  $\text{R}^{\text{BF}}$  are the same as  $\text{R}^{\text{A}}$  and  $\text{R}^{\text{B}}$ , respectively,

the combination of  $R^A$  and  $R^B$  may form a bivalent group selected from a bivalent saturated hydrocarbon group, a halogenated bivalent saturated hydrocarbon group, a hetero atom-containing bivalent saturated hydrocarbon group and a halogenated (hetero atom-containing bivalent saturated hydrocarbon) group, provided that when the combination of  $R^A$  and  $R^B$  forms a hydrogen-containing bivalent group, the bivalent group formed by the combination of  $R^{AF}$  and  $R^{BF}$  is a group derived from the hydrogen-containing bivalent group by replacing substantially all the hydrogen atoms by fluorine atoms, and when the combination of  $R^A$  and  $R^B$  forms a bivalent group containing no hydrogen atoms, the bivalent group formed by the combination of  $R^{AF}$  and  $R^{BF}$  is the same as the bivalent group containing no hydrogen atoms.

8. The process according to Claim 7, wherein at least part of the compound represented by the formula (7) is a fluorinated acyl fluoride represented by the formula (3) obtained as the result of dissociation of the ester bond in the compound represented by the formula (9).

9. The process according to Claim 7, wherein the fluorine content of the compound represented by the formula (8) is from 30 to 70 mass%.

10. The process according to Claim 7, wherein the molecular weight of the compound represented by the formula (8) is from 200 to 1000.

11. The process according to Claim 1, wherein all of  $X^1$ ,

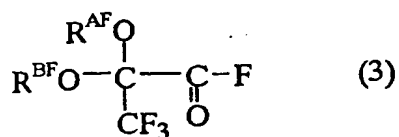
$X^2$  and  $X^3$  are hydrogen atoms.

12. The process according to Claim 7, wherein all of  $X^1$ ,  $X^2$  and  $X^3$  are hydrogen atoms.

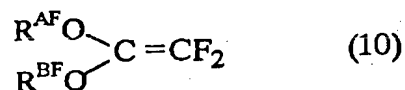
13. The process according to Claim 1, wherein  $R^A$  and  $R^B$   
 5 are hetero atom-containing monovalent saturated hydrocarbon groups which are ether oxygen-containing monovalent saturated hydrocarbon groups or halogenated (hetero atom-containing monovalent saturated hydrocarbon groups which are halogenated (ether oxygen-containing  
 10 monovalent saturated hydrocarbon) groups.

14. The process according to Claim 7, wherein  $R^A$  and  $R^B$   
 are hetero atom-containing monovalent saturated hydrocarbon groups which are ether oxygen-containing monovalent saturated hydrocarbon groups or halogenated  
 15 (hetero atom-containing monovalent saturated hydrocarbon groups which are halogenated (ether oxygen-containing monovalent saturated hydrocarbon) groups.

15. A process for preparing a fluorinated vinyl ether, which comprises pyrolyzing the fluorinated acyl fluoride  
 20 represented by the following formula (3) obtained by the process according to Claim 1 to form a compound represented by the following formula (10):

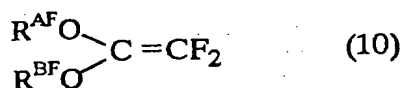
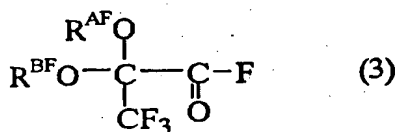






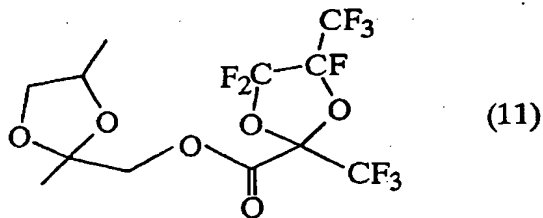
wherein  $\text{R}^{\text{AF}}$  and  $\text{R}^{\text{BF}}$  are the same as defined above.

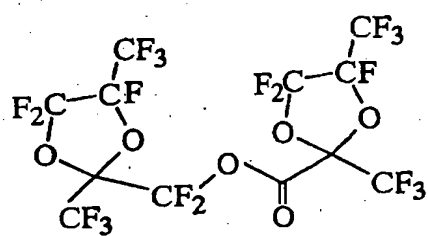
16. A process for preparing a fluorinated vinyl ether, which comprises pyrolyzing the fluorinated acyl fluoride represented by the following formula (3) obtained by the process according to Claim 7 to form a compound represented by the following formula (10):



- 10 wherein  $\text{R}^{\text{AF}}$  and  $\text{R}^{\text{BF}}$  are the same as defined above.

17. A compound represented by the following formula (11) or (12).





(12)